

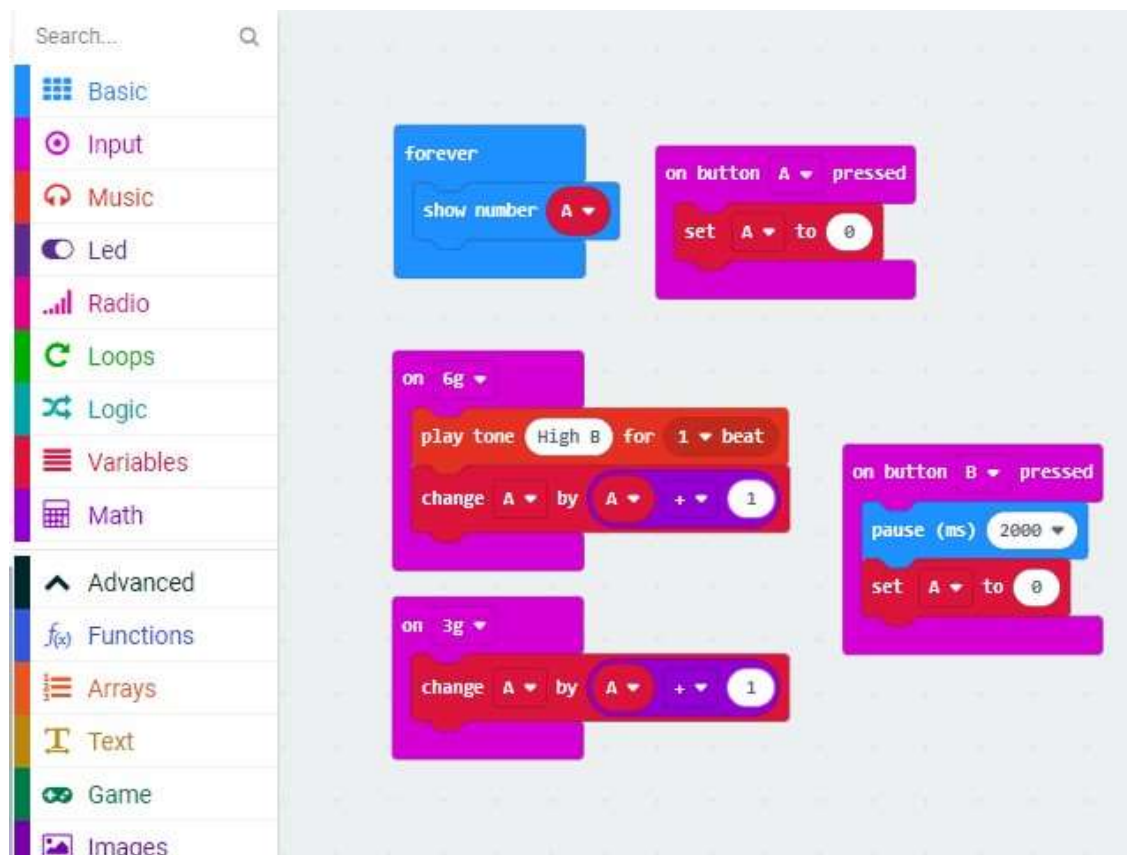
The Education University of Hong Kong

2021-2022 Quality Education Fund Thematic Network – Tertiary Institutes

STEM Project Team

SCHOOL: P. H. C. WING KWONG COLLEGE (S2)
TOPIC: WATER ROCKET WITH PARACHUTE 2

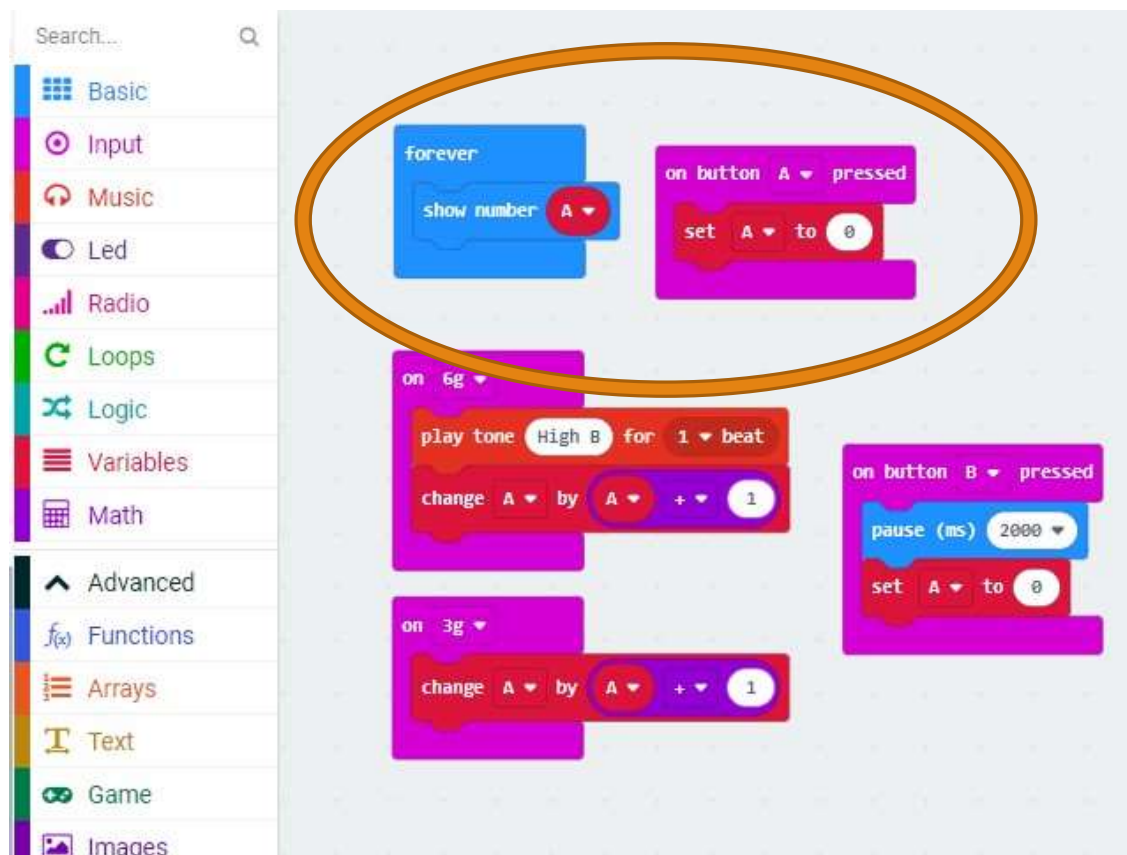
Micro:bit 計分裝置 - Code



The screenshot displays the Micro:bit code editor interface. On the left is a sidebar with a search bar and a list of code blocks categorized into Basic, Input, Music, Led, Radio, Loops, Logic, Variables, Math, Advanced, Functions, Arrays, Text, Game, and Images. The main workspace contains the following code blocks:

- A blue **forever** loop block containing a **show number** block with the variable **A** selected.
- A purple **on button A pressed** block containing a **set A to 0** block.
- A purple **on 6g** block containing a **play tone** block (set to **High B** for **1** beat) and a **change A by** block (set to **A + 1**).
- A purple **on button B pressed** block containing a **pause (ms)** block (set to **2000**) and a **set A to 0** block.
- A purple **on 3g** block containing a **change A by** block (set to **A + 1**).

Micro:bit 計分裝置 - Code



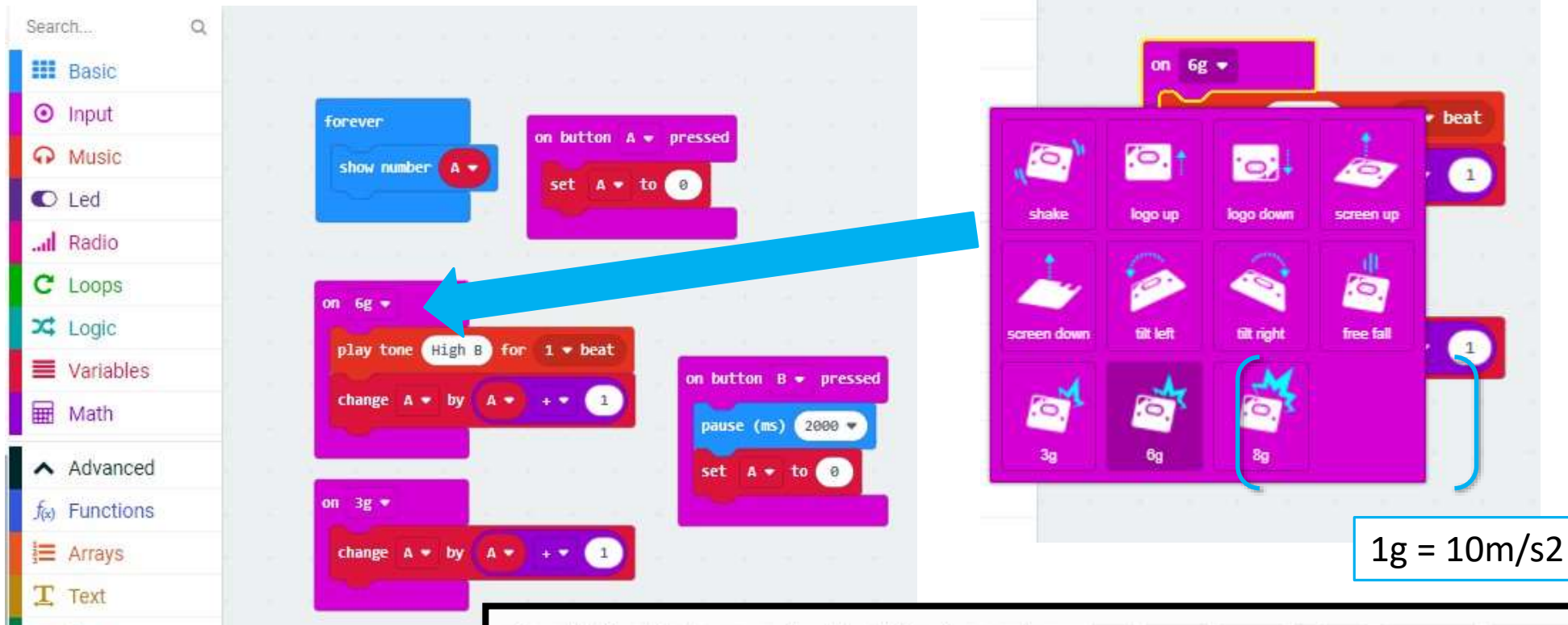
MUST*

Micro:bit 計分裝置 - Code



Either one*

Micro:bit 計分裝置 - Code



Search...

- Basic
- Input
- Music
- Led
- Radio
- Loops
- Logic
- Variables
- Math
- Advanced
- Functions
- Arrays
- Text

```
forever loop:
  show number A

on button A pressed:
  set A to 0

on 6g:
  play tone High B for 1 beat
  change A by A + 1

on button B pressed:
  pause (ms) 2000
  set A to 0

on 3g:
  change A by A + 1
```

gesture menu: shake, logo up, logo down, screen up, screen down, tilt left, tilt right, free fall, 3g, 6g, 8g

1g = 10m/s²

<https://microbit-challenges.readthedocs.io/en/latest/tutorials/accelerometer.html>

micro:bit is able to recognise the following gestures: `up`, `down`, `left`, `right`, `face up`, `face down`, `freefall`, `3g`, `6g`, `8g`, `shake`. Gestures are always represented as strings. While most of the names should be obvious, the `3g`, `6g` and `8g` gestures apply when the device encounters these levels of g-force.

Micro:bit 計分裝置 - Code

```
Search...  
Basic  
Input  
Music  
Led  
Radio  
Loops  
Logic  
Variables  
Math  
Advanced  
Functions  
Arrays  
Text  
Game  
Images
```

forever
show number A

on button A pressed
set A to 0

on 6g
play tone High B for 1 beat
change A by A + 1

on 3g
change A by A + 1

on button B pressed
pause (ms) 2000
set A to 0

Better version of design:

Variable:
Time (2-4s)

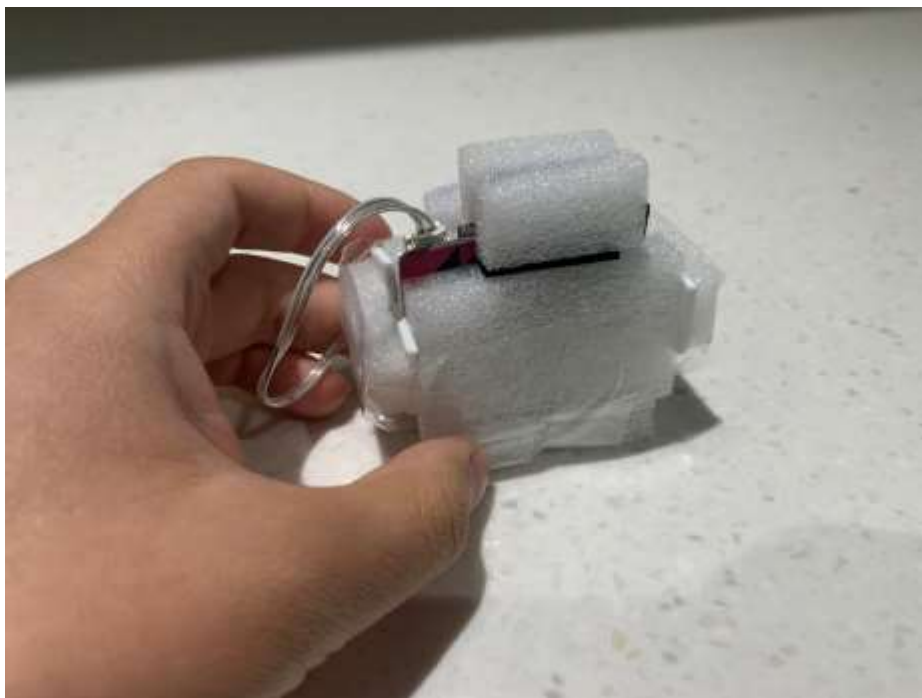
Micro:bit 保護物料



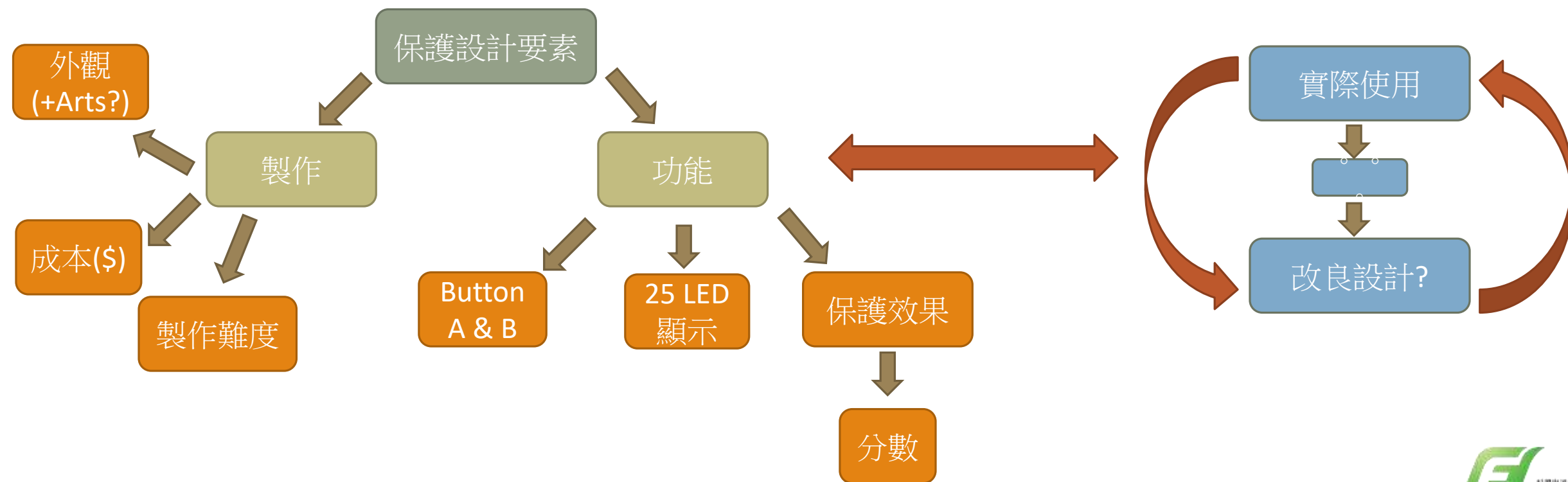
日常生活? – 包裝用品

物理? (撞擊) – 撞擊時間/彈性

Micro:bit 保護設計參考



Micro:bit 保護設計要素 (工程設計循環)



補充：保護套設計大小 & 火箭頭設計

